

REMARKS

In the pending Office Action, Examiner San Miguel rejected each of the pending claims as allegedly anticipated by or obvious over U.S. Patent No. 5,057,111 to Park. Reconsideration of this application is respectfully requested in light of the following remarks.

Independent claim 1 was alleged to be anticipated by the Park reference, but respectfully Park does not disclose all elements of claim 1. Park discloses a rigid plate with holes fixed to a bone across a break by screws, and also discloses a "separation producing means" or polymer member 28. The member 28 is adhered to the interior of a hole in the plate, and the screw is screwed into bone through the plate hole so that the head of the screw holds the plate to the bone. Park does not show or suggest a mobile linking element suitable for being displaced relative to fixed elements, nor an intermediate element that permits articulation of a mobile linking element relative to a fixed element, as recited in claim 1. Plate 12 of Park is placed so that it is rigidly fixed between the bone and the screw, so that force on the bone is transmitted through the screws to the plate, and all of the load is supported by the plate. Over time, Park's member 28 shifts or resorbs so that contact is broken between the screws and the plate, and force on the bone is consequently not transmitted through the screws to the plate. While the connection between the screw and the plate may be broken, that does not inherently mean that the plate can be displaced relative to a screw. Rather, one of ordinary skill in this art understands that when plates are fixed in contact with bone, as in the Park reference, tissue begins growing into the plate's pores and/or holes and around the plate, creating a natural grip of tissue on the plate. When some small space is created between the screw head and the member 28 in Park, and thus no force is transmitted to plate 12, there is still no displacement between the plate and the screw. It thus cannot be said that plate 12 is an element suitable for being displaced relative to the screw.

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Further, Park's member 28 does not permit articulation of plate 12 relative to a screw, but performs exactly the opposite function. It is pressed between the screw head and the plate so as to transmit force from the bone through the screw to the plate, thereby removing a load from the bone after implantation. If the member 28 were to permit articulation of the plate relative to the screw, load would not be diverted from the bone, which defeats the initial purpose for the plate and hinders healing or makes it impossible. Once the member 28 of Park degrades, there is nothing remaining to permit such articulation. And the growth of tissue into and around the plate mentioned above does not permit the plate to articulate with respect to a screw.

The Office Action also alleges that screw 35 of Park has three degrees of rotation relative to member 28, suggesting that screw 35 "may be capable of rotation in the x-y-z axis."

Respectfully, it is not clear from the Office Action what is meant by that recitation, but it is clear from Park that its screw 35 does not have three degrees of rotation relative to member 28.

Initially, the terms "rotation" and "degrees of freedom" or similar terms are not found in the Park reference. Moreover, Figure 5 of Park, reproduced below, shows that it is impossible for either

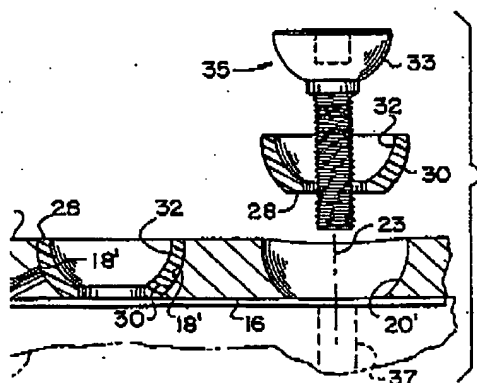


FIG. 5

plate 12 or screw 35 to rotate in three degrees of freedom with respect to member 28. The flat lower surface of member 28 sits flush on the flat bottom of the hole of plate 12. Member 28

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cannot rotate with respect to plate 12 in three degrees of freedom because of the interference of those flat surfaces. Screw 35 also cannot rotate with respect to member 28 in three degrees of freedom because of the necessity of a tight, non-rotatory connection to the load transfer function of the screw and plate discussed above. If screw 35 could rotate at the time of implantation around an axis out of the page (as represented in Park's Figure 5), for example, load would not be transferred from bone to plate 12, but would cause the screws to rotate with respect to plate 12. Further, note the cylindrical collar between the head 33 of screw 35 and its threaded shaft, as well as the circular opening in the bottom of member 28. That collar will seat in that circular opening, and their interference will prohibit rotation between screw 35 and member 28 in the plane of the page, for example.

The member 28 also is not and cannot be placed in the plate 12 by impaction as disclosed and claimed. As shown in Figures 2A-2C and described in paragraph 0035, impaction indicates a deforming of the intermediate member as it is forced into the linking member. In Park, the member 28 is not placed by impaction, but is simply "disposed" in the hole in plate 12. The opening of the hole in the plate is the same size as the largest dimension of the member 28, and thus the only thing holding the member 28 in the hole is the screw 35.

For these and other reasons the subject matter of claim 1 is not anticipated by the Park reference. Claims 2-7 depend from claim 1, and accordingly are not anticipated by or obvious over the Park reference as well.

New claims 8-17 are being offered, as indicated above. Support for these claims is found throughout the specification and drawings. For example, discussion concerning diameters and internal volumes are found, among other places, in or near paragraphs 26, 28-29, 35, 40 and 42 and associated drawings. The flat portion recited in claim 9 is seen in, among other places,

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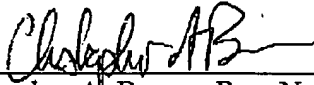
paragraphs 23, 29 and 47 and associated drawings. The term "socket member" includes element 20 described and shown in the application, and the stop referred to in claims 14 and 15 is found in paragraph 47 and associated drawings. The separation recited in claim 11 is evident from Figure 3B and the discussion in paragraph 43, which states that once assembled as in Figure 3B, screw 2 is fixed in bone. Since that fixation must stop at or before contact of head 4 with the bone, and item 10 remains above the head 4, the linking member must be separated from the bone. No new matter has been added.

Claims 8-17 are allowable over the Park reference and the other references of record for a number of reasons. Among these, claims 8-11 are dependent from claim 1, which is allowable as discussed above. The width relationships and or flat portions recited in claims 12-17, which allow rotatable connection without risk of coming apart, are also absent from Park, as is the stop of claims 14 and 15. For these and other reasons, it is submitted that neither Park nor the other record references anticipate or render any of the pending claims.

It should be understood that these remarks are not intended to provide an exhaustive basis for patentability or concede the basis for the rejections in the Office Action but are simply provided to address those rejections in the most expedient fashion. Applicant reserves the right to later contest positions taken by the Examiner not specifically addressed herein, including arguing claims not specifically argued herein. No amendments have been made to the claims, and they are intended to have the full scope afforded by their language, including equivalents.

Reconsideration in view of the above remarks and a Notice of Allowance is respectfully requested. If any further action would place this case in better form for allowance, the Examiner is encouraged to call the undersigned.

Respectfully submitted,

By: 
Christopher A. Brown, Reg. No. 41,642
Woodard, Emhardt, Moriarty McNett & Henry LLP
111 Monument Circle, Suite 3700
Indianapolis, Indiana 46204-5137
(317) 634-3456